PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

To:

NASSIF, Omar, A.
Gowling, Strathy & Henderson
Suite 4900
Commerce Court West
Toronto, Ontario M5L 1J3
CANADA

Date of mailing (day/month/year)
22 October 1998 (22.10.98)

Applicant's or agent's file reference
K8000025PCT

IMPORTANT NOTIFICATION

International application No.
PCT/CA97/00759

International filing date (day/month/year)
16 October 1997 (16.10.97)

1. The following indications appeared on record concerning:

☐ the applicant ☐ the inventor ☒ the agent ☐ the common representative

Name and Address
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2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☒ the person ☒ the name ☒ the address ☐ the nationality ☐ the residence

Name and Address
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State of Nationality:
State of Residence:
Telephone No.: 416-862-5775
Facsimile No.: 416-862-7661
Teleprinter No.:

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office
☐ the International Searching Authority
☒ the International Preliminary Examining Authority
☐ the designated Offices concerned
☒ the elected Offices concerned
☐ other:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer
J. Leitao

Telephone No.: (41-22) 338.83.38

Form PCT/IB/306 (March 1994) 002299259

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

United States Patent and Trademark Office
(Box PCT)
Crystal Plaza 2
Washington, DC 20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 22 October 1998 (22.10.98)	
International application No. PCT/CA97/00759	**Applicant's or agent's file reference** K8000025PCT
International filing date (day/month/year) 16 October 1997 (16.10.97)	**Priority date** (day/month/year) 03 March 1997 (03.03.97)
Applicant SAMSOONDAR, James	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

02 October 1998 (02.10.98)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer J. Leitao
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

Form PCT/IB/331 (July 1992) 2299254

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

To:

RUDOLPH, John, R.
Bereskin & Parr
Box 401
40 King Street West
Toronto, Ontario M5H 3Y2
CANADA

Date of mailing (day/month/year)
07 January 1999 (07.01.99)

Applicant's or agent's file reference
K8000025PCT

IMPORTANT NOTIFICATION

International application No.
PCT/CA97/00759

International filing date (day/month/year)
16 October 1997 (16.10.97)

1. The following indications appeared on record concerning:

[ ] the applicant [ ] the inventor [X] the agent [ ] the common representative

Name and Address
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3. Further observations, if necessary:

4. A copy of this notification has been sent to:

[X] the receiving Office
[ ] the International Searching Authority
[X] the International Preliminary Examining Authority
[ ] the designated Offices concerned
[X] the elected Offices concerned
[ ] other:

The International Bureau of WIPO
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1211 Geneva 20, Switzerland

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Authorized officer
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Form PCT/IB/306 (March 1994) 002414118

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

To:

RUDOLPH, John, R.
Bereskin & Parr
Box 401
40 King Street West
Toronto, Ontario M5H 3Y2
CANADA

Date of mailing (day/month/year)
07 January 1999 (07.01.99)

Applicant's or agent's file reference
K8000025PCT

IMPORTANT NOTIFICATION

International application No.
PCT/CA97/00759

International filing date (day/month/year)
16 October 1997 (16.10.97)

1. The following indications appeared on record concerning:

[X] the applicant [X] the inventor [ ] the agent [ ] the common representative

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State of Residence: CA
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[ ] the person [ ] the name [X] the address [ ] the nationality [ ] the residence

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State of Residence: CA
Telephone No.:
Facsimile No.:
Teleprinter No.:

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

[X] the receiving Office
[ ] the International Searching Authority
[X] the International Preliminary Examining Authority
[ ] the designated Offices concerned
[X] the elected Offices concerned
[ ] other:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer
J. Leitao

Telephone No.: (41-22) 338.83.38

FOR THE PURPOSES OF INFORMATION ONLY

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EE	Estonia	**LR**	Liberia	**SG**	Singapore		

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION**	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
K8000024PCT		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/CA 97/ 00759	16/10/1997	03/03/1997
Applicant		
CME TELEMETRIX INC. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. [ ] **Certain claims were found unsearchable** (see Box I).

2. [ ] **Unity of invention is lacking** (see Box II).

3. [ ] The international application contains disclosure of a **nucleotide and/or amino acid sequence listing** and the international search was carried out on the basis of the sequence listing
   - [ ] filed with the international application.
   - [ ] furnished by the applicant separately from the international application,
     - [ ] but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.
   - [ ] Transcribed by this Authority

4. With regard to the **title,**
   - [X] the text is approved as submitted by the applicant
   - [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**
   - [X] the text is approved as submitted by the applicant
   - [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is:
   Figure No. _____
   - [ ] as suggested by the applicant.
   - [ ] because the applicant failed to suggest a figure.
   - [ ] because this figure better characterizes the invention.
   - [X] None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/CA 97/00759

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G01N21/27

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 158 506 A (EASTMAN KODAK) 16 October 1985 see abstract see page 8, line 19 - line 22 see page 9, line 4 - line 8 see page 16, line 18 - page 17, line 27	1,3-5,8, 10,14,15
A	see page 21, line 8 - line 16; claim 3	16,17

Y	R.G. PRATT ET AL: "Quantitation of perfluorocarbon blood substitutes in tissues using F-19 magnetic resonance spectroscopy" BIOMATERIALS, ARTIFICIAL CELLS AND IMMOBILIZATION TECHNOLOGY, vol. 20, no. 2-4, 1992, pages 921-924, XP002057067 see abstract see introduction	1,3-5,8, 10,14,15

	-/--	

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 February 1998	08. 05. 98

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Thomas, R.M.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/CA 97/00759

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 415 401 A (STARK) 6 March 1991 see column 1, line 10 - line 15 see column 2, line 23 - line 52 see column 4, line 35 - line 46 see column 5, line 2 - line 18 see column 5, line 44 - line 54 see column 15, line 21 - line 27	1,3,4,16

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/CA 97/00759

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0158506 A	16-10-85	US 4627014 A	02-12-86
		CA 1227658 A	06-10-87
		JP 1754411 C	23-04-93
		JP 4039904 B	01-07-92
		JP 60249037 A	09-12-85
EP 0415401 A	06-03-91	US 5568400 A	22-10-96
		DE 69031642 D	04-12-97

PATENT COOPERATION TREATY

PCT

REC'D 06 MAY 1999
WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
T84835WO		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/CA97/00759	16/10/1997	03/03/1997
International Patent Classification (IPC) or national classification and IPC G01N21/27		
Applicant CME TELEMETRIX INC. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 8 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☒ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
02/10/1998	- 4. 05. 99
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. (+49-89) 2399-0 Tx: 523656 epmu d Fax: (+49-89) 2399-4465	Authorized officer Loades, M Telephone No. (+49-89) 2399 2184

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/CA97/00759

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1,2,4-23	as originally filed			
3,3a,24	as received on	08/04/1999	with letter of	06/04/1999

Claims, No.:

1-18	as received on	08/04/1999	with letter of	06/04/1999

Drawings, sheets:

1/7-7/7	as originally filed

2. The amendments have resulted in the cancellation of:

☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-18
	No:	Claims	
Inventive step (IS)	Yes:	Claims	8-18
	No:	Claims	1-7
Industrial applicability (IA)	Yes:	Claims	1-18
	No:	Claims	

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

SECTION I

The following represents extension beyond the original disclosure as follows:
As compared with original claim 1, present claim 1 refers to the broader ""selected interferent" instead of "blood substitute interferent", and to "one or more other interferents". The subject matter of present claim 2 should apparently have been left in claim 1.

SECTION V

1. The following documents are referred to in this report:
D1....EP 0 158 506 A (EASTMAN KODAK) 16 October 1985
D2....R.G. PRATT ET AL: "Quantitation of perfluorocarbon blood substitutes in tissues using F-19 magnetic resonance spectroscopy" BIOMATERIALS, ARTIFICIAL CELLS AND IMMOBILIZATION TECHNOLOGY, vol. 20, no. 2-4, 1992, pages 921-924, XP002057067

2. **Novelty and inventive step.**

Independent claims:
Claim 1 (assumed to include the features of claim 2, in view of objection in Section 1)
D1 relates to a method and apparatus for determining, by absorption spectrophotometry, a substance (in D1 referred to as an "analyte"), such as bilirubin (see page 1) or haemoglobin (see page 8), in human serum, in the presence of unknown interferents. In this method, a calibration algorithm is developed - see pages 16-17 describing how a linear regression analysis is employed to determine the parameters of a regression line, on the basis of a multiplicity of samples of known concentrations. There is no disclosure in D1 that the substance to be determined may be a blood substitute. The types of interferents envisaged are recited on page 8-9.
Thus all features of claim 1 appear to be disclosed in D1 apart from the fact that blood substitute is to be identified in the sample. However, it is known in the art to make such a determination - see e.g. D2, in which the aim is to quantify the amount of such a blood substitute.
Thus it would appear obvious for the person skilled in the art to apply the method of D1 to a sample containing blood substitute and thereby arrive at the subject matter of claim

1 without inventive step.

Claim 8
There does not appear to be a disclosure in D1 of the combination of steps i and ii , so that this claim appears to be novel and inventive.

Claim 17
The detailed method of claim 17 is not disclosed nor apparently rendered obvious by the prior art.

Dependent claims:
Claims 4, 5: In D1 haemoglobin may be determined, in the presence of other interferents. It would seem obvious to extend this to samples in which a blood substitute is also present.
Claim 5 seems to be obvious, consequential to the argument re. claim 4.
Claims 3 and 6 seems to relate to a processing procedure readily derivable from the prior art techniques (see e.g. D1 formulae) and knowledge of the wavelengths of absorption of the substances to be determined.
Claim 7 would appear to be standard processing practice in this type of system.

In view of the opinion on claims 8 and 17, claims 9-16, 18 seem also to be novel and inventive.

SECTION VII

1. At page 3A, line 10, the word "affected" is misspelt
2. The statements of invention on pages 4-5 do not properly correspond with the wording of the claims.

SECTION VIII

a. The presence of a plurality of independent claims of varying scope and including features repeated using only slightly varying terminology results in a general lack of conciseness in the claims. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult to determine the matter for

which protection is sought, and places an undue burden on others seeking to establish the extent of the protection. There may also be lack of unity of invention in these claims but this has not been raised formally in view of the objection to general lack of clarity and conciseness.

b. In claim 1 (as originally filed - NB Section I above), the blood substitute is referred to as an "interferent" when it is the analyte in claim 1, and haemoglobin the "interferent". NB, in contrast, for example, in D1, bilirubin and haemoglobin are examples of the "analyte", while in the present application they are termed "interferents". This leads to confusion.

The term "interferent" should be clear from the wording of the claims themselves.

WE CLAIM:

1. A method of identifying the presence of a blood substitute interferent contained in a specimen in the presence of Hb liberated from blood cells, turbity and bile pigments, by quantification of the blood substitute in said specimen, using a spectrophotometer, comprising the steps of:

i) generating a calibration algorithm for said interferent;

ii) measuring with said spectrophotometer, absorbance of radiation by said interferent in said specimen; and

iii) incorporating said absorbance measured in step ii) in said algorithm and calculating the concentration of said interferent in said specimen.

2. The method as claimed in Claim 1 wherein said interferent is CLHb and said algorithm is:

g/L CLHb = A(541nm) - B(558nm) + C(600nm) - D(616nm) + E

where (Xnm) is the first derivative of absorbance measured at the wavelength specified and A, B, C, D and E represent constants.

3. A method of taking into account the concentration of a blood substitute interferent contained in a specimen, in a measured analyte concentration obtained from a specimen, using a spectrophotometer, comprising the steps of:

i) generating a calibration algorithm for said blood substitute interferent;

ii) generating an algorithm for said analyte which provides a relationship between a measured analyte concentration and an amount of blood substitute interferent present in said specimen;

iii) measuring with said spectrophotometer, absorbance of radiation for said specimen with any blood substitute present in the specimen;

Replaced by Article 34

iv) using said calibration algorithm and absorbance measured in step iii) to predict concentration of blood substitue interferent present;

v) correlating the relationship from step ii and the prediction from step iv to predict concentration of analyte as if no blood substitute interferent were present.

4. A method of measuring Hb liberated from blood cells in the presence of a blood substitute interferent based on Hb contained in a specimen, using a spectrophotometer, comprising the steps of:

i) generating a calibration algorithm for said liberated Hb;

ii) measuring with said spectrophotometer absorbance of radiation by each of said specimens with any blood substitute interferent present; and

iii) incorporating said absorbance measured in step ii) in each of said algorithms and calculating the concentration said liberated Hb in said specimen.

5. The method of claim 4 wherein said concentration of liberated Hb is determined in the presence of one or more additional interferents chosen from the group consisting of IL, BR and BV.

6. The method of claim 5 wherein said calibration algorithm for liberated Hb is:

$$g/L\ Hb = A(558) - B(570) + C(730) - D$$

where numbers in the parenthesis are the first derivative of absorbance at the wavelengths (nm) shown and A, B, C and D are constants.

7. The method of Claim 1, wherein said quantification includes calculating the first derivatives of at least two portions of a spectrum

generated from a scan for a particular interferent which are used to calculate said interferent concentration.

8. The method of claim 3 wherein said specimen also contains one or more non-blood substitue interferents and wherein the concentration of said non-blood substitute interferent is also determined by:

i) generating a calibration algorithm for each of at least one non-blood substitute interferent;

ii) measuring the absorbance of radiation by said specimen; and

iii) correlating the absorbance measured in step ii) to the amount of said non-blood substitute interferent.

9. The method of claim 3 where the at least one analyte is chosen from the group consisting of Na, K, Cl, HCO_3, Ca, Mg, creatinine, urea, total protein, GGT, AST, LDH, CK, ALP and Tbili.

10. The method of claim 3 where reflectance is used instead of absorbance.

11. The method of claim 3 where the radiation is in the range of 474-910 nm.

12. The method of claim 3 where calibration is conducted with samples containing all interferents expected during an analysis of an unknown sample.

13. The method of claim 11 where the sample contains an even distribution of interferents of interest, and the concentrations of any two interferents do not correlate significantly.

14. The method of claim 8 where said non-blood substitue interferent is selected from the group consisting of Hb, BR, BV and turbidity.

15. The method of claim 3 where the measured concentration of an analyte is correlated to an amount of blood substitute present by developing an appropriate linear regression equation in an analyzer.

16. A method of distinguishing true hemolysis from pseudo hemolysis caused by a blood substitute interferent comprising the steps of:

a. identifying the presence of a blood substitute interferent contained in a specimen in the presence of Hb liberated from blood cells, turbity and bile pigments, by quantification of the blood substitute in said specimen, using a spectrophotometer, comprising the steps of:

i) measuring absorbance of radiation by said interferent in said specimen; and

ii) incorporating said absorbance measured in step a. i) in the following algorithim:

g/L CLHb = A(541nm) - B(558nm) + C(600nm) - D(616nm) + E

where (Xnm) is the first derivative of absorbance measured at the wavelength specified, and calculating the concentration of said interferent in said specimen, and A, B, C, D and E represent constants; and

b. measuring Hb liberated from blood cells in the presence of said blood substitute interferent contained in a specimen, using a spectrophotometer, comprising the steps of:

i) measuring absorbance of radiation by said specimen with said blood substitue interferent present; and

ii) incorporating said absorbance measured in step b.i) in the following algorithm:

g/L Hb = A(558) - B(570) + C(730) - D

where numbers in the parenthesis are the first derivative of absorbance at the wavelengths (nm) shown, where A, B, C, and D are constants, and calculating the concentration said liberated Hb in said specimen.

17. The method of claim 18 wherein said concentration of liberated Hb is determined in the presence of one or more additional interferents chosen from the group consisting of IL, BR and BV.

developed for each interferent using different groups of wavelengths with the resultant prediction performance by the different algorithms for the same interferent being similar. Also, algorithms can be developed for any interferent or combinations of interferents including blood substitutes, which will enable one to adjust measured analyte concentrations, for the presence of one or more interferents.

While the invention has been particularly shown and described with reference to certain embodiments, it will be understood by those skilled in the art that various other changes in form and detail may be made without departing from the spirit and scope of the invention.

Hemolysis, the liberation of Hb from red blood cells into serum or plasma, may account for about 2 g/L, but blood substitutes can account for as much as 30 g/L of cross-linked Hb (CLHb), in a patient treated for severe blood loss. However, true hemolysis will not only make serum and plasma specimens appear red, but high concentrations of certain analytes inside red cells, e.g. potassium, will elevate the concentration of analytes in a serum or plasma specimen. Therefore, the effect of Hb-based blood substitutes on blood test results, is more predictable than the effect of true hemolysis.

Current methods used for detecting haemoglobinemia, bilirubinemia and lipemia or turbidity utilize visual inspection of the specimen with or without comparison to a coloured chart.

Most blood substitutes under development are made from human Hb, but another type of blood substitute has been reported which is a milky-white emulsion containing tiny beads of perfluorocarbons wrapped in a surfactant. The former will create pseudohemolysis while the latter will create pseudolipemia, in serum and plasma specimens. Subunits of Hb-based blood substitute are chemically cross-linked for stability (CLHb) and produce absorbance spectra which are very similar to the absorbance spectra of normal hemoglobin (Hb).

Currently there is no method for rapidly adjusting blood test results which are effected by blood substitutes. The present invention describes such a method. The method and apparatus of the present invention for measuring the concentration of blood substitutes in the presence of Hb, BR, BV and turbidity: The results of measurements of blood substitutes obtained